

Ziegelei 1 D-72336 Balingen E-Mail: info@kern-sohn.com Phone: +49-[0]7433-9933-0 Fax: +49-[0]7433-9933-149 Internet: www.kern-sohn.com

# **Operating manual Electronic Suspending Balance**

# Logbook Regular maintenance and care

# **KERN CH**

Version 3.2 08/2014 GB





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Version 3.2 08/2014

# Operating instructions / Logbook Electronic Suspending Balance

# **Contents**

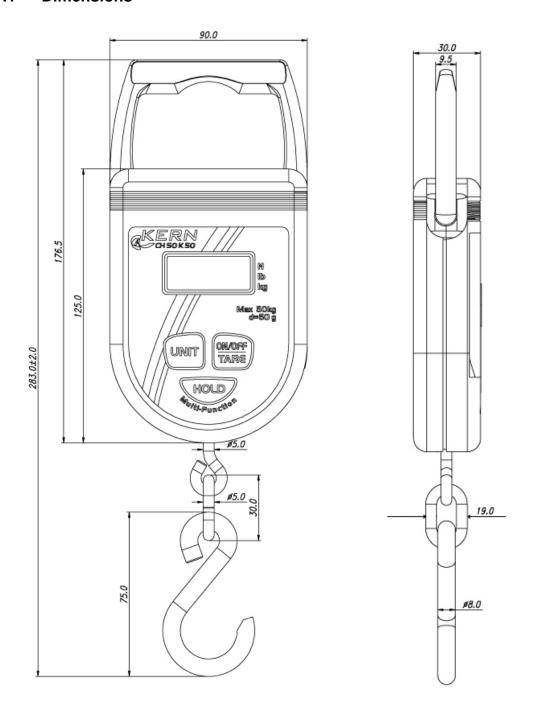
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# 1. Technical data

KERN	CH 15K20	CH 50K50	CH 50K100			
Readability (d)	20 g	50 g	100 g			
Weighing range (max)	15 kg	50 kg	50 kg			
Taring range (subtractive)	15 kg	50 kg	50 kg			
Reproducibility	20 g	50 g	100 g			
Linearity	± 40 g	± 100 g	± 200 g			
Recommended adjustment weight, not added (class)	10 kg (M3)	20 kg (M3)	20 kg (M3)			
Stabilization time		2 s				
Warm-up time		10 min				
Units		kg, lb, N				
Auto off		3 min				
Allowable ambient temperature		5+ 35 °C				
Ambient humidity (max)		80 %				
Battery (in series)		1 x 9 V Block Operating time 20	h			
Display		Digit height 11 mi	m			
Housing size W x D x H	90 mm x 30 mm x 176.5 mm					
Housing material	Synthetic material					
Material Hook	Stainlees steel					
Net weight	250 g					

# 1.1 Dimensions



# 2. General Safety Instructions

#### 2.1 Duties of the owner-operator

Follow national accident prevention regulations and all operator health and safety at work and operating regulations.

- The balance may only be used for the proposed purpose. Any type of use which is not specified in these operating instructions, will be considered as improper use. The customer is solely responsible for material damage and injury of persons resulting from an improper use, Messrs. KERN & Sohn will not be liable under any circumstance.
  - Messrs . KERN & Sohn cannot be held liable, if the suspended balance is modified or used improperly and if damage is resulting from such use.
- Inspect and service suspended balance and load suspension device regularly (see chap. 8.3).
- Log the test result and keep it in the logbook.

# 2.2 Organizational measures

- Only trained and instructed staff may operate the balance.
- Make sure that the operating instructions are kept nearby the operation site of the suspended balance.
- Assembly, commissioning and maintenance should only be carried out by trained specialists.
- Weight-bearing components must not be replaced

#### 2.3 Environmental conditions

- Never operate suspended balance in spaces exposed to explosion hazards. The serial version is not explosion protected.
- Operate the suspended balance only under environmental conditions as specified in these operating instructions (especially in chapter 1 "Technical data").
- Do not expose the suspended balance to strong humidity. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Do not use suspended balance in environments exposed to corrosion hazards.
- Protect the suspended balance against high humidity, vapours and dust.
- Major display deviations (incorrect weighing results) may be experienced should electromagnetic fields (e.g. due to mobile phones or radio equipment), static electricity accumulations or instable power supply occur. Change location or remove source of interference.

# 2.4 Pay attention to the instructions in the Operation Manual



- □ Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.
- ⇒ All language versions contain a non-binding translation. The original German is binding.

# 2.5 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a "non-automatic" balance, i.e. the material to be weighed is suspended on the load receptor only vertically, manually, carefully and without jerks. As soon as a stable weighing value is reached the weighing value can be read.

- Use the suspended balance only for lifting and weighing of freely movable loads.
- Danger of injury due to improper use. Not allowed are e.g.:
  - Exceeding the allowed nominal load of crane, suspended balance or any type of load attachment devices
  - Conveying persons,
  - Pulling loads over an inclined surface,
  - Tearing-off, pulling or towing loads.
- Modifications or reconstructions of the suspended balance are not allowed.

# 2.6 Improper Use

Do not use balance for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the "stability compensation". (Example: Slowly draining fluids from a container suspended on the balance.) Do not leave permanent load suspended on the balance. This may damage the measuring system as well as safety-relevant parts.

The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

#### 2.7 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- Mechanical damage and damage caused by media, liquids,
- Natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

# 2.8 Safe working

Do not stand under swinging loads, see chap. 5.1.

# 2.9 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page (www.kern-sohn.com) with regard to the monitoring of balance test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and balances may be calibrated (return to the national standard) fast and at moderate cost.

#### 2.10 Testing upon acceptance

Inspect packaging immediately upon receipt and inspect device when unpacking, see chap. 4.1. in the event of any evident damage.

#### 2.11 Initial Commissioning

In order to obtain exact results with the electronic balances, your balance must have reached the operating temperature (see warming up time chap. 1).

During this warming up time the balance must be connected to the power supply (mains, accumulator or battery).

The accuracy of the balance depends on the local acceleration of gravity.

Strictly observe hints in chapter Adjustment.

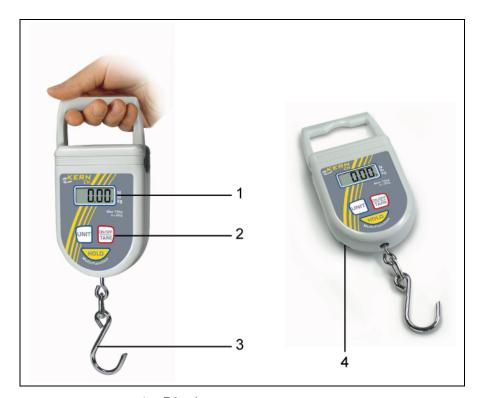
For checking original dimensions, s. chap. 4.3

#### 2.12 Shutdown and storage

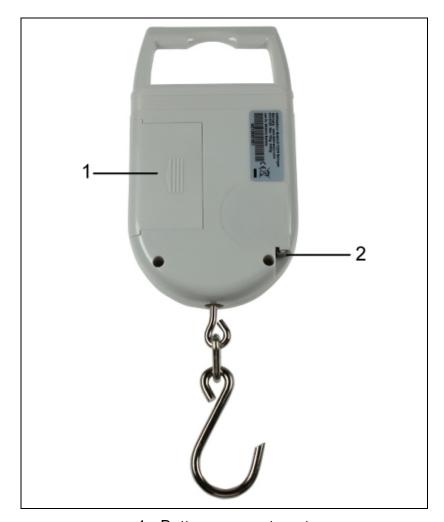
- Switch off suspended balance and remove batteries
- Do not store suspended balance outdoors.

# 3. The suspended balance at a glance

# 3.1 Overview



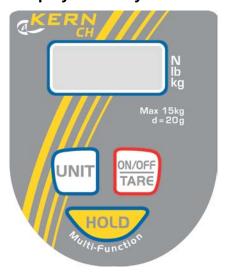
- 1 Display
- 2 Keyboard
- 3 Hooks
- 4 Tape measure



Battery compartment

2 Tape measure

# 3.2 Overview visual displays and keyboard



# Displays:

►kg	The current m	The current measuring unit is kilogram					
▶lb	The current m	neasuring unit is pound					
►N	The current m	neasuring unit is Newton					
•		Indicates the weight value depending on the active setting H1-H6 (see chap. 5.7).					
	H1-H4:	Data-Hold function					
	H5	Animal weighing function					
	H6	H6 Peak value function					
LO	Capacity of ba	Capacity of batteries exhausted					
E	Overload	Overload					

# Keyboard:

Key	Description	Description of function
ON/OFF TARE	ON/OFF button	<ul> <li>Switch on balance</li> <li>Switch off balance (hold button)</li> <li>Taring</li> <li>Scroll forward in menu</li> </ul>
UNIT	<b>UNIT-</b> button	Switch over weighing unit (kg→lb→N)
HOLD	HOLD button	<ul><li>Set weight display</li><li>Display average value for animal weighing</li><li>Confirm menu setting</li></ul>

# 3.3 Label



- ⇒ Do not stand or go under suspended loads.
- ⇒ Do not use on building site.
- ⇒ Keep an eye on suspended loads.



⇒ Do not exceed nominal rated load of balance.

(example)



⇒ The product conforms to the requirements of the German Equipment and Product Safety Act.

# 4. Commissioning



+ Always observe chapter 2 "General Safety Instructions"!

# 4.1 Unpacking



SAFETY
INSTRUCTIONS
for protection against
break

Once delivered and unpacked, suspended balance will not be taken back.

The suspended balance is sealed by KERN.

- ⇒ Removal from packaging is also sealed.
- + Broken seal obliges to purchase.



Fig.: Seal

Thanks for your comprehension. Your KERN Quality assurance team

## 4.2 Scope of delivery

Remove balance and accessories from packaging, remove packaging material. Verify that there has been no damage and that all packing items are present.

- Suspended balance, see chap. 3.0
- Hook (stainless steel)
- Batteries (1 x 9 V block)
- Operating instructions / logbook

## 4.3 Checking the original dimensions

- ⇒ Enter the original dimensions shown on the production data sheet in the grey boxes of checklist chap. 8.3.
- ⇒ Enter all data (date, tester, results) in the first line under "Inspection before first use" in the checklist (see chapter 8.3)



If the dimensions of your first safety inspection do not match those of KERN, the balance must not be put into operation. In this case please contact a service partner authorised by Messrs. KERN.

# 4.4 Battery operation



Push out battery cover on the rear side of the balance in arrow direction. Insert V block battery. Reinsert the battery cover. If the batteries are empty, in the balance display appears "LO". Press ON/OFF/TARE -key and replace the batteries immediately. In order to save the battery, the balance switches automatically off after 4 minutes without weighing. This auto-off function can be deactivated in the menu (see chap. 6).

# 5. Operation





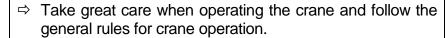
Keep balance only by hand, see fig. (do not use a crane or alike).

# 5.1 Safety instructions





Risk of injury due to falling loads!



- ⇒ Check all parts (hook, carbines, rings, rope slings, cables, chains etc.) for excessive wear or damage
- ⇒ Work only with appropriate speed
- ⇒ Always avoid vibrations and horizontal forces. Avoid any kind of shock, torsion and oscillating (e.g. caused by inclined suspending)
- ⇒ Do not use the suspended balance for conveying loads.



⇒ Do not stand or go under suspended loads.



⇒ Do not use on building site.



⇒ Keep an eye on suspended loads.



⇒ Do not exceed nominal rated load of suspended balance or any kind of attachment device on the suspended balance.

(example)

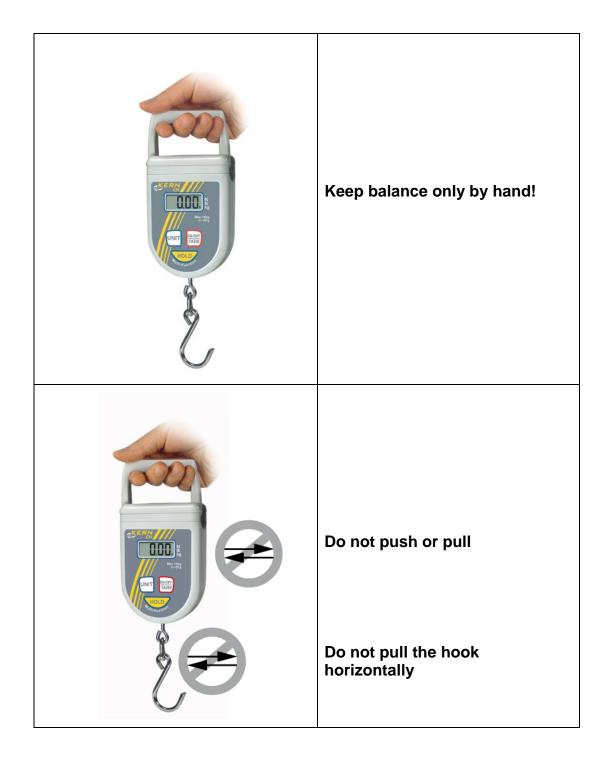
# 5.2 Loading the suspended balance

For good weighing results observe the following, illustrations see next page:

- ⇒ Do not suspend the balance on load attachment devices. Use only when keeping by hand.
- ⇒ Do not pull or push the load or the loaded balance.
- ⇒ Do not pull the hook horizontally.

# Loading the balance

- 1. Position the hook of the suspended balance over the load.
- 2. Suspend and lift the load. (directly on the hook)



#### 5.3 Turn on/off

#### Start-up

⇒ Press the ON/OFF/TARE-key. The display lights up and the balance carries out a selftest. The selftest is completed when the weight value 0.0 appears on the display.

#### **Switching Off**

⇒ Press the **ON/OFF/TARE**-key for a long time.

## 5.4 Taring

⇒ Suspend preload.

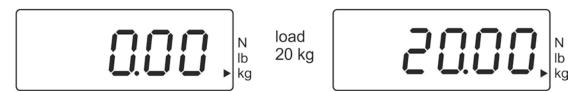
Press the **ON/OFF/TARE**-button, the zero display appears. The weight of the container is now internally saved.



- ⇒ Weigh the material, the net weight will be indicated.
- ⇒ After removing the preload weight appears as negative display.
- ⇒ To delete the tare value, remove load from the suspended balance and press the **TARE** button.

## 5.5 Weighing

⇒ Load the suspended balance.
 The weight value will be displayed at once.

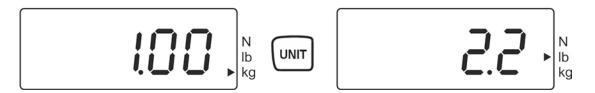


# Overload warning

Overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. This could cause damage to the balance.

Exceeding the maximum load is indicated by the display "E". Unload balance or reduce preload.

# 5.6 Switch-over weighing unit



The next measuring unit will be displayed kg→ lb→N after each press of the UNIT button.

The ▶ indicator shows the active unit.

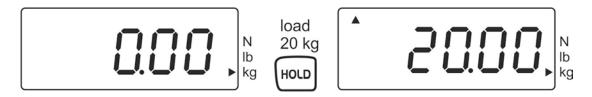
## 5.7 Functions

With help of the **Hold**-key the following functions can be activated:

Adjustment	Function				
H1	Data-Hold function 1 Weighing value frozen for 5 sec. after pressing the <b>Hold</b> -key				
H2	Data-Hold function 2 The weighing value will be frozen after pressing the <b>Hold</b> -key until another key is actuated	sactuated			
H3	Data-Hold function 3 The weighing value is automatically frozen for 5 sec.	+	see chap. 5.7.1		
H4	Data-Hold function 4 The weighing value is automatically frozen after reaching a stable value until a key will be actuated				
H5	Animal weighing function	+	see chap. 5.7.2		
H6	Peak value function	+	see chap. 5.7.3		

#### 5.7.1 Data-Hold function

- ⇒ Switch on the balance, keep the **HOLD**-button pressed until the current setting "Hx" (H1 H6) appears.
- ⇒ Press ON/OFF/TARE-button repeatedly until the desired setting "H1-H4" is displayed.
- ⇒ Confirm setting with the **HOLD** button.
- ⇒ Suspend the material to be weighed
- ⇒ The weight value is fixed and displayed depending on the setting (H1 H4) (see chap. 5.7), represented by the [▲] in the upper left.



#### 5.7.2 Animal weighing function

This function is suitable for busy weighing procedures. The result is a mean value formed by 16 weighing values.

- ⇒ Switch on balance using the **ON/OFF/TARE**–button
- ⇒ Press the **HOLD**-button and keep it pressed until "H x" in the display appears
- ⇒ Press the **ON/OFF/TARE**-button until "H5" in the display appears.
- ⇒ Save the setting by shortly pressing the **HOLD**-button
- ⇒ Press the **HOLD**-button anew
- □ Upside left in the display a [▲] starts flashing.
- ⇒ Suspend a load
- ⇒ As long as the [▲] flashes, the weighing values are recorded.
- ⇒ After that the average weighing value of the recorded weighing values is recorded.

#### 5.7.3 Peak value function

This function displays the highest load value (peak value) of a weighing. Measuring frequency: 200ms

#### Attention:



Never exceed the maximum permitted load of the peak value on the balance (!!Danger of breaking!!).

- Switch on balance using the **ON/OFF/TARE**—button
- Press the **HOLD**-button and keep it pressed until "H x" in the display appears
- Press the **ON/OFF/TARE** until "H6" in the display appears
- Save the setting by shortly pressing the **HOLD**-button
- Suspend a load
- The peak value function is displayed by a [▲] upside left

A negative value [-] is displayed as soon as the balance is relieved

#### 6. Menu

- ⇒ When the balance is switched off, press the **HOLD**-key and keep it pressed
- □ Do not release the HOLD-key. Press also the ON/OFF/TARE-key and keep it pressed
- ⇒ Keep the **ON/OFF/TARE**-key pressed, however release the **HOLD**-key
- ⇒ Press **HOLD**-key anew
- ⇒ Keep both keys pressed until in the display "tr" appears.
- ⇒ Release both keys. The balance is situated in the menu.
- ⇒ Using the **ON/OFF/TARE** button you can select between the following functions:
  - tr (Zero tracking): ON/OFF
  - AF (Auto off): ON/OFF
  - rST (reset to factory settings): YES/NO
- ⇒ Press the HOLD button to confirm the selected function
- □ In the display appears the current setting "ON" or "OFF" resp. "YES" or "NO". You can select between "ON" or "OFF" and/or "YES" or "NO" with the ON/OFF/TARE-button. Confirm your selection with the HOLD-key. After a short period the balance returns automatically to weighing mode.

# 7. Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out for the first commissioning, after each change of location as well as in case of fluctuating environment temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

Observe stable environmental conditions. A warming up time of approx. 1 minute is recommended for stabilization.

Prepare adjustment weight, for details see chap. 1 "Technical data".

⇒ Switch on balance



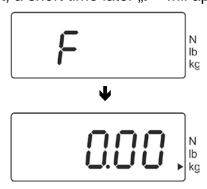
⇒ Press **Unit** button and hold down (approx. 3 sec) until "**CAL**" is displayed.



⇒ Wait until the weight value of the required adjustment weight (e.g. 10 kg, see chap. 1) is displayed.



⇒ Attach adjustment weight, a short time later "F" will appear.



⇒ After adjustment the balance automatically returns to weighing mode.

An adjusting error or incorrect adjusting weight will be indicated by the error message; repeat adjustment procedure

# 8. Cleaning, Maintenance and Disposal



Risk of injury and risk of material damage! The suspended balance is part of the lifting gear! For a safe operation please observe the following:

- ⇒ Have carried out a regular maintenance by trained specialized staff
- ⇒ Carry out regular maintenance and servicing, see chap. 8.3.
- ⇒ Have the parts exchanged only by trained specialized staff.
- ⇒ If there arose discrepancies with the safety checklist, the balance must not more be put into operation.
- ⇒ Do not repair the suspended balance yourself. Repair may only be carried out by service partners authorized by Messrs. KERN.

# 8.1 Cleaning and Disposal



#### Damage to suspended balance!

- Do not use industrial solutions or chemicals (e.g. acid → embrittlement).
- ⇒ Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

# 8.2 Regular maintenance and care

- ▲ The regular 3-month maintenance may only be carried out by an expert with competent knowledge of working with suspended balances. Thereby the national regulations for prevention of accidents as well as the working, operation and safety regulations of the owner-operator.
- ▲ To check the dimensions only use suitable test devices.
- ▲ The regular 12-month maintenance must only be carried out by trained specialized staff (KERN customer service).
- ▲ The results of the maintenance must be written down in the checklist (chap. 8.3).
- ▲ The additional results of the extended maintenance have to be entered in the checklist (chapter 9.1).
- ▲ The load suspension device is to be cleaned before inspection, see chap. 8.1.

## Regular maintenance:

Prior to each usage	Check fo	r fault-free operation of the attachment devices
Initial start-up,	Check al	l dimensions, see checklist chap. 8.3
every 3 months or definitely after 12 500 weighing processes	such as e (unevenr damage Remove the perm checklist All repair	e attachment device (handle grip) for wear and tear, e.g. plastic deformation, mechanical damage ness), notches, striation, cracks, corrosion, thread and torsions. balance from use immediately if a reading exceeds itted deviation from the original reading (see, chap. 8.3) or any other fault is identified. It is and replacement parts (e.g. hook) must be need by the service partner (see list, chap. 9.1).
Every 12 months or in any case after 50 000 weighings	trained si revision a with mag	nanced maintenance has to be carried out by taff (KERN customer service). At this general all load carrying parts must be checked for gaps inetic powder arts such as handle must be visually inspected
Every 10 years or anyway after 500 000 weighings	Replace	the crane balance entirely

#### Note

During the revision watch out for wear and tear according to the following drawings (chap. 8.3).

Rejection criteria: Load suspension devices may no longer be used when e.g.

- + Deviations are identified during the inspections specified for servicing.
- + The type or load rating plate is missing.
- + Load suspension devices known to have been overloaded or subject to other harmful influences may no longer be used and/or may be re-used only after inspection.

# 8.3 Checklist "Regular maintenance"

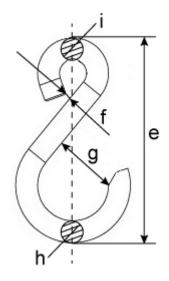
Original dimensions suspended balance*, serial no.:							
Total scale	Hooks	3					
d (mm)	e (mm)	f (mm)	g (mm)	h (mm)	i (mm)	Wear and tear	Angle α (°)
Date	Tester						

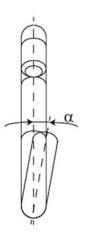
<sup>\*</sup>These data can be found in the document attached to the balance. Please keep this document always available.

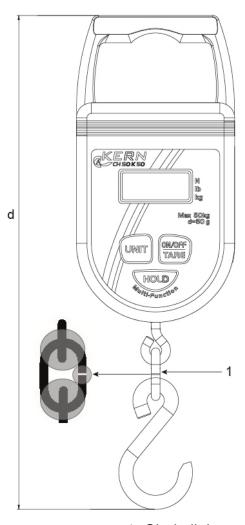
	Total scale	Hooks							Optic	al test				
	_		_					Wear (see cross-	No deformation, wear or cracks			3		
	d	е	f	g	h	i	α	hatched areas)	handle	hook	chain link	other parts	Date	Tester
Max. admitted variation	1%	1%	5 %	5 %	5 %	5 %	10 °							
Revision prior to first use														
3 months/12 500 x														
6 months/25 000 x														
9 months/37 500 x														
12 months/50 000 x														
15 months/62 500 x														
18 months/75 000 x														
21 months/87 500 x														

	Total scale	le Hooks								Optic	al test						
		_	_	Safety fastening				, h			Wear (see	No defor	mation, we	ar or crack	s		
	d		е	f	g	h	i	α	cross- hatched areas)	handle	hook	chain link	other parts	Date	Tester		
Max. admitted variation	1%	Perfect working order	1%	5 %	5 %	5 %	5 %	10°									
Revision prior to first use																	
24 months/100 000 x																	
27 months/112,500 x															-		
30 months/125 000 x																	
33 months/137 500 x																	
36 months/150 000 x																	
39 months/162 500 x																	
21 months/87 500 x																	
42 months/175 000 x																	
45 months/187 500 x																	
48 months/200 000																	
51 months/212 500 x																	
54 months/225 000 x																	
57 months/237 500 x																	
60 months/250 000x	→ All load carr	ying parts h	ave to be e	exchange	d by a ser	vice partr	ner author	rised by K	ERN.			1	1				

**bold letters** = this maintenance work has to be carried out by a service partner authorized by KERN.







1 Chain link

# 9. Enclosure

# 9.1 Checklist "Enhanced maintenance" (General revision)

The enhanced maintenance has to be carried out by a service partner authorized by KERN.

Suspending balan	се	Model Serial no								
Interval	Magnetic powder test for cracks	Hooks	Chain links (marked areas)	Hand grip	Date	Name	Signature			
12 months/50 000 x										
24 months/100 000 x										
36 months/150 000 x										
48 months/200 000 x										
60 months/250 000 x										
72 months/300 000 x										
84 months/350 000 x										
96 months/400 000 x										
108 months/450 000 x										
120 months/500 000x	20 months/500 000x → Replace suspended balance completely									

# 10. Declaration of conformity



#### KERN & Sohn GmbH

D-72322 Balingen-Frommern

Postbox 4052

F-Mail: info@kern-sohn.de

Phone: 0049-[0]7433- 9933-0 Fax: 0049-[0]7433-9933-149 Internet: www.kern-sohn.de

# **Declaration of conformity**

**EC Declaration of Conformity** EC- Déclaration de conformité EC-Dichiarazione di conformità

EC- Declaração de conformidade

EC-Deklaracja zgodności

**EC-Declaration of -Conformity** 

EC-Declaración de Conformidad

**EC-Conformiteitverklaring** 

EC- Prohlášení o shode

ЕС-Заявление о соответствии

	• •	
D	Konformitäts-	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht,
	erklärung	mit den nachstehenden Normen übereinstimmt.
EN	Declaration of	We hereby declare that the product to which this declaration refers conforms
	conformity	to the following standards.
CZ	Prohlášení o	Tímto prohlašujeme, že výrobek, kterého se toto prohlášení týká, je v souladu
	shode	s níže uvedenými normami.
E	Declaración de	Manifestamos en la presente que el producto al que se refiere esta
	conformidad	declaración está de acuerdo con las normas siguientes
F	Déclaration de	Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la
	conformité	présente déclaration, est conforme aux normes citées ci-après.
Ī	Dichiarazione di	Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si
	conformità	riferisce è conforme alle norme di seguito citate.
NL	Conformiteit-	Wij verklaren hiermede dat het product, waarop deze verklaring betrekking
	verklaring	heeft, met de hierna vermelde normen overeenstemt.
P	Declaração de	Declaramos por meio da presente que o produto no qual se refere esta
	conformidade	declaração, corresponde às normas seguintes.
PL	Deklaracja	Niniejszym oświadczamy, że produkt, którego niniejsze oświadczenie dotyczy,
	zgodności	jest zgodny z poniższymi normami.
RUS	Заявление о	Мы заявляем, что продукт, к которому относится данная декларация,
	соответствии	соответствует перечисленным ниже нормам.

# Electronic Balance: KERN CH / HCB/ HCN / HDB

<b>EU Directive</b>	Standards
2004/108/EC	EN 61326-1 : 2006
	EN 61326-2-1 :2006
2006/95/EC	EN 61010-1:2010
2006/42/FC	EN 13155/A2·2009

Date 10.07.2013

Date

Ort der Ausstellung 72336 Balingen Place of issue

**Signatur** 

Signature

Albert Sauter KERN & Sohn GmbH Manager

Managing director

KERN & Sohn GmbH, Ziegelei 1, D-72336 Balingen, Tel. +49-[0]7433/9933-0 Fax +49-[0]7433/9933-149, E-Mail: info@kern-sohn.com, Internet: www.kern-sohn.com